F1 Database User's Guide

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Database Systems – ISYS2014

ASSIGNMENT

Contents

Files and Scripts:

There are a total of six files related to the implementation part of the assignment. Each have distinct functions, and all are required to create and run the Formula 1 database as intended. They are:

1. createTables.sql: This file has all the CREATE TABLE functions, responsible for defining all the tables that are designed.
2. insertData.sql: This file contains all the sample data inserted, just for demonstrating the functionality and design of the database.
3. advanced.sql: This file contains all the advanced features implemented. i.e., the stored procedures, triggers, and views.
4. queries.sql: This file contains all the queries designed and discussed in the report.
5. build.sql: This file contains the commands to setup and run the database. The setup needs to be done in a specific order, so this file makes it easier to complete.
6. connect.py: This file contains the MySQL python connector, so the user can access the database with a basic user interface.

Setup:

The setup needs to be done when user is already logged into their MySQL server. You can do this using the command "mysql -u <username> -p", assuming the necessary dependencies have been downloaded beforehand. Once logged in, follow the instructions below. You will not need to create any databases, as the setup files will do so for you.

To run the database as intended, the setup commands need to be done in a specific order, or you will get errors. There are two ways to setup the database up:

1. Manually: This way, you will have to run each file individually, in the specific order to complete the setup. The order is:
    a. Running the createTables.sql script.

"\. createTables.sql" or "SOURCE createTables.sql"

    b. Running the insertData.sql script.

"\. insertData.sql" or "SOURCE insertData.sql"

    c. Running the advanced.sql script.

"\. advanced.sql" or "SOURCE advanced.sql"

    d. Calling the insertTeamPoints() stored procedure.

"CALL insertTeamPoints();"

2. Automatically: This will make it much, much simpler to setup. Simply running the build.sql script, will run the scripts required for setup in the sequence, thus setting up the F1 database. All the required files will need to be in the same folder for the automatic setup to run without errors.

"\. build.sql" or "SOURCE build.sql"

Then, run the queries.sql script, to run the queries discussed in the report.

"\. queries.sql" or "SOURCE queries.sql"

Using The Database:

Once the setup is complete, you can start using the features. The setup creates a database called “f1”, so enter “USE f1;” to use database. To show the views, use:

1. Display the driverStand view:

   “SELECT * FROM driverStand”

2. Display the constructorStand view:

   “SELECT * FROM constructorStand”

To run the stored procedures:

1. checkTeam():

“CALL checkTeam(<teamName>, <return var>);”. Ex: CALL checkTeam(‘Haas’, @test);”

2. checkTyre():

“CALL checkTyre(<compound>, <return var>);”. Ex: “CALL checkTyre(‘C2’, @test);”

3. numOfTyres():

“CALL numOfTyres(<compound>, <return var>);”. Ex: “CALL numOfTyres(‘C1’, @test);”

4. insertCircuit():

“CALL insertCircuit(<name>, <country>, <compound>);”

Ex: “CALL insertCircuit(‘Dubai Circuit’, ‘UAE’, ‘C3’);”

5. insertRace():

“CALL insertRace(<name>, <circuit>, <day1Date>, <raceDate>);”.

Ex: “CALL insertRace(‘Dubai Race’, ‘Dubai Circuit’, ‘2022-06-18’ , ‘2022-06-20’);”

6. updateSupplier():

“CALL updateSupplier(<teamName>, <supplierName>);”.

Ex: “CALL updateSupplier(‘Haas’, ‘Mercedes’);”

7. appointWin():

“CALL appointWin(<raceID>, <dNo>);”. Ex: “CALL appointWin(12, ‘20’);”

Accessing From Python:

The f1 database can also be accessed from a python connector connection. Keep in mind that the setup should be complete before trying to use the connector, or else you will encounter errors.

To use the connector, run the python file connect.py using "$python3 connect.py"

Once the file is run, you will prompted for to enter:

1. The host's name your MySQL server is running on
2. A valid user's name, to authenticate the MySQL server on your machine
3. The password for the MySQL user

```
(base) v3num@V3nUM:~/uni/dbs/ass$ python3 connect.py
Enter the MySQL server host: localhost
Enter a valid MySQL server username: Shuber
Enter password: password
```

After the authentication is successful, the connection is made. Now you can use the connector to run the queries discussed in the report with much more control, as they can be run individually here, instead of just running the queries.sql file.

You will be presented with a menu, with some options where keys are mapped to specific queries. To display a query, simply type one of the options and enter.

```
Welcome to the Formula 1 database
Options:
        Q       Quit
        S       Display the Suppliers table
        TM      Display the Teams table
        D       Display the Drivers table
        TR      Display the Tyres table
        C       Display the Circuits table
        R       Display the Races table
        W       Display the Winners table
        DS      Display current driver standings
        CS      Display current constructor standings
        1-9     Number of query you want to display (there are 9, respectively)


Enter option: 6
('Mercedes', 'Aston Martin')
('Mercedes', 'McLaren')
('Mercedes', 'Williams')
(3,)

Enter option:
```